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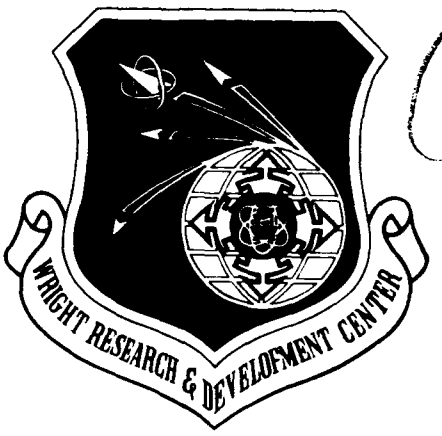

INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume VI - Network Transaction Manager Subsystem
Part 3 - Network Transaction Manager (NTM) Operator's Manual

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19. ABSTRACT *(Continue on reverse if necessary and identify block number)*

This manual provides detailed instructions for operating the Integrated Information Support System (IISS). Instructions are also included for initiating and shutting down the Network Transaction Manager (NTM) and describing error codes, and for maintaining the NTM tables.

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FOREWORD

This technical report covers work performed under Air Force Contract F33600-87-C-0464, DAPro Project. This contract is sponsored by the Manufacturing Technology Directorate, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Bruce A. Rasmussen, Branch Chief, Integration Technology Division, Manufacturing Technology Directorate, through Mr. David L. Judson, Project Manager. The Prime Contractor was Integration Technology Services, Software Programs Division, of the Control Data Corporation, Dayton, Ohio, under the direction of Mr. W. A. Osborne. The DAPro Project Manager for Control Data Corporation was Mr. Jimmy P. Maxwell.

The DAPro project was created to continue the development, test, and demonstration of the Integrated Information Support System (IISS). The IISS technology work comprises enhancements to IISS software and the establishment and operation of IISS test bed hardware and communications for developers and users.

The following list names the Control Data Corporation subcontractors and their contributing activities:

SUBCONTRACTOR	ROLE
Control Data Corporation	Responsible for the overall Common Data Model design development and implementation, IISS integration and test, and technology transfer of IISS.
D. Appleton Company	Responsible for providing software information services for the Common Data Model and IDEF1X integration methodology.
ONTEK	Responsible for defining and testing a representative integrated system base in Artificial Intelligence techniques to establish fitness for use.
Simpact Corporation	Responsible for Communication development.
Structural Dynamics Research Corporation	Responsible for User Interfaces, Virtual Terminal Interface,and Network Transaction Manager design, development, implementation, and support.
Arizona State University	Responsible for test bed operations and support.

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SECTION 1

INTRODUCTION

This manual provides instructions to the Network Transaction Manager (NTM) Operator. Instructions are included which cover all supported host CPUs. Instructions which are unique to a CPU are separated from those which apply generally to all supported systems.

Each different mainframe on which the NTM is run presents a different interface for startup. These differences include the operating system commands and the library structure. Each mainframe's instructions for starting the NTM is presented as a separate subsection.

1.1 MAINFRAME DEPENDENT STARTUP

The startup procedures for each mainframe computer are different. The following subsections will discuss the VAX and IBM nodes and the specific startup procedure for each node.

1.1.1 VAX ENVIRONMENT

1.1.1.1 RUNTIME MODULE LOCATION

In order to run NTM, data files for the NTM tables must reside in a directory that is pointed to by the logical name NTMDIR. The logical name NTMDIR is defined in the command procedure NTM_SETUP.COM. Before starting the NTM, be sure that the logical name NTMDIR is correct (see the NTM Installation Guide for additional detail) and that the NTM_SETUP.COM procedure has been executed. It is suggested that the NTM_SETUP.COM be executed in the system wide login. The Network Transaction Manager (NTM) executable modules NTMMON, NTNTMMPU, NTERRLOG, NTMSGLOG, and all executable modules of applications to be run in the NTM environment must be in directories known to the NTM.

1.1.1.2 SYSGEN PARAMETERS

Prior to running the NTM, an ID must be assigned to the NTM. This ID allows multiple NTM environments to run simultaneously. To assign an ID, modify the NTMDIR:[EXE]NTMINIT. file and change the NTMID= record as shown in the NTM Installation Guide. The default NTM ID is "A", which should be sufficient for most environments that will only be running a single instance of the NTM.

1.1.1.3 NTM STARTUP

The NTM environment on each host within the NTM system is started individually under control of the local host operating system. Once the NTM Operator has logged on to the local host under the appropriate system directory, the invocation of a command file will cause the local operating system to load and execute the Monitor AP. It is the NTM system component responsible for coordinating NTM start up. On the VAX, the command file NTM_SETUP should be executed during user login. The NTM can then be invoked as follows:

$NTM

NTM START-UP at <date> <time>

```
NTM INITIALIZATION STARTED
NTM-C>
APC VAX is not active
          ***********************************************
          ***                                         ***
          ***        NETWORK TRANSACTION MANAGER      ***
          ***                Version 2.00             ***
          ***                                         ***
          ***********************************************
```

1.1.2 IBM ENVIRONMENT

The normal installation of the NTM will result in the NTM start-up procedure being made available as a member of the PDS NTMver.BUILD(NTM). This procedure may be transferred to a system procedure library such as SYS1.PROCLIB in which case the CPU Operator enters the start command to initiate the NTM as a batch process. The exact form of this command varies with the local operating procedures. If it is left as a member of NTMver.BUILD, the NTM is run as a user job.

1.1.2.1 IBM STARTUP

If the NTM start-up procedure has been transferred to a system procedure library, the command to start-up is:

S NTM

or

START NTM

If the start-up procedure has not been transferred to a system procedure library, submit the NTMver.BUILD(NTM) JCL.

If the standard procedure is used without local modification, the required datasets will be allocated and accessed under the name NTMver.xxx. The low level qualifier xxx is the type of data.

NOTE: When establishing a communications link between an IBM and VAX node, the NTM on the VAX node must be started first. The DECnet/SNA COMM implements a passive connect request, which informs the DECnet/SNA Interface that the VMS application is ready to engage in a session when the session is initiated by the IBM application. For this reason, the NTM must be started on the VAX side first for the Version 2.0 release of the DECnet/SNA COMM in order to establish an LU 2 connection. This limitation will be removed in a future release of the DECnet/SNA COMM.

1.2 STARTUP COMMON PROCEDURES

After NTM start up has begun, start up status messages are displayed to the NTM Operator console. These messages indicate which NTM components have been successfully initiated and where errors have occurred in start up processing.

If, during NTM start-up, any or all of the communication link start-up requests fail, start-up processing will continue and normal NTM processing will be available to the local host.

SECTION 2

NTM OPERATOR COMMANDS

2.1 GENERAL

The NTM supports the following Operator commands:

Display	Status
	Pending
	Apc,xxx
Start	Apc,xxx
	Link,xxxxxxxx
	Newlog,xxx (xxx - MSG or ERR)
Stop	Apc,xxx
	Link,xxxxxxxx
	Host,xxxxxxxx
Shutdown	Time,nn (nn - no of minutes)
	Cancel
Enable	Sigerr
Disable	Sigerr
Help	

"Help" will display the list of Operator commands. The processing of these commands is fairly straightforward. "Shutdown Time" is more complex and will be covered in the section of this manual on shutting down the NTM (Section 4). Commands may be abbreviated to the least number of characters that uniquely identify them. Commands that include ",xxx..." or ",nn" mean that additional information such an APC name or a Link ID is required. This information must be entered as part of the command (i.e., NTM-A>disp apc vax). If a command requiring this information is entered without it, the message "INVALID OPTION - MISSING" is displayed. The command must be reentered with the missing information. This data is verified and the command is executed. Between the time the Operator enters the requested command data and the time at which the command processing is complete, the Operator console is disabled for further input. Therefore, there may be no overlapping of Operator commands. The results of the command will be displayed at the console.

Note that in the case of an IBM mainframe, commands shown here are entered as text in reply to a numbered WTOR message. Any time that entry of an Operator command is permissable, there will be an outstanding WTOR message. The MVS Operator command 'D R,L' will redisplay information about messages awaiting reply.

2.2 DISPLAY STATUS

This command displays the current status of all NTM components.

```
NTM-A>disp stat

* * * * * * * * *  System Status  * * * * * * * * *
* * * * * * * * *  NTM-A VAX is ACTIV * * * * * * *

Host VAX         Status - ACITV   Desired - ACTIV
   APC QQQ       Status - INACT   Desired - INACT
   APC VAX       Status - ACTIV   Desired - ACTIV

Links
   VQ To IBM     Status - INACT   Desired - INACT
   VI To IN2     Status - INACT   Desired - INACT

Msglog - ACTIV,  Errlog - ACTIV, Sigerr ENABLED
NTM-A>
```

2.3 DISPLAY APC

This command enables the NTM Operator to see a list of the active AP's on a particular APC.

```
NTM-A>disp apc vax

The active applications on VAX are as follows
Ap Name          Original Source    Status   A/C   Chldn Msgs

NTNTMONITV00     NTNTMONITV00MRV    ACTIVE   RTC    NO   0000
```

where A/C is the abort characteristics and CHLDN is an indicator that this AP has spawned one or more sub APs.

2.4 START APC

This command enables the NTM Operator to start an APC. Only non-component APC's on the local host may be started via this Operator command.

```
NTM-A>start apc qqq
NTM-A>
APC QQQ is now active
```

2.5 START LINK

This command is invoked to start the communications link to a remote host.

```
NTM-A>start link vi
Starting Link VI To Host IN2
NTM-A>
```

2.6 START NEWLOG

```
NTM-A> start newlog msg
NTM-A>
```

A new logfile will be started. This allows the Operator to isolate the log files for specific tests or time periods.

2.7 STOP APC

This command causes an APC anywhere in the NTM environment to be shutdown. Only non-component APC's (other than MRx, COx, and UIx) Application Clusters may be shutdown via this Operator command.

```
NTM-A>stop apc qqq
APC QQQ has ended
NTM-A>
```

2.8 STOP LINK

This command is invoked to shutdown the communications link to a remote host.

```
NTM-A>stop link vi
Stop Link VI To Host IN2 requested
```

2.9 SHUTDOWN TIME

This command is discussed in the separate section on shutting down NTM.

2.10 SHUTDOWN CANCEL

This command may only be used during the NTM shutdown process. It is discussed further in the section covering the shutdown process.

2.11 ENABLE SIGERR

This command sets the condition that all SIGERR messages that arrive at the MONITOR will be displayed on the Operator's console.

```
NTM-A>enable sigerr
Sigerr message displan enabled.
NTM-A>
```

2.12 DISABLE SIGERR

This command prevents SIGERR messages from being displayed at the NTM Operator's console. As most SIGERR messages are notifications of internal AP problems, the Operator may choose this option to restrict console displays to NTM errors only. This modification is the default one. When the NTM starts up, the display of SIGERR messages at the operator's console is disabled.

```
NTM-A>disable sigerr
Sigerr message display disabled.
NTM-A>
```

SECTION 3

SHUTTING DOWN THE NTM

The Operator command "Shutdown Time" is invoked when the NTM system is to be shutdown.

The time value (in minutes) entered by the Operator will determine the elapsed time until shutdown processing of the NTM system components actually begins. User applications will be notified of shutdown pending only if time until shutdown is one minute or more. Otherwise, shutdown will proceed immediately, shutting down active AP's according to their characteristics.

NTM Application Processes (APs) are notified that a system shutdown is pending and they should prepare to close their session. After shutdown has been requested, only Operator commands "Display Status", "Display APC", and "Shutdown Cancel" will be accepted. It is only during a timed shutdown that the Operator may choose to cancel the shutdown request.

If the Operator enters the "Shutdown Cancel" command, NTM APs are notified that the shutdown has been cancelled and normal NTM processing is resumed. After the elapsed time until shutdown has expired, shutdown processing begins with the shutdown of all active APC's, notification of shutdown to remote hosts and network communications are terminated. Finally, when all NTM components have terminated, the Monitor AP concludes shutdown processing and ends execution. Control is returned to the host operating system.

SECTION 4

NTM ERROR CODES

4.1 MPU PROCESSING ERROR CODES

MPU processing codes are those errors which are detected by an MPU during its normal processing activities. Upon the occurrence of an MPU processing error, the following error message is displayed to the NTM Operator console:

```
Error in APNAME on APC xxx  Code: yyyyy  Severity: z
     Description of error
```

The "APNAME" is the name of the MPU that detected the error condition. "APC" is the three character name of the host, "Code" is the error code and "Severity" is F for fatal or W for warning. The "Desciption of error" is data relevant to the error condition. As an example, on a 31001 error (Mailbox Write) the name of the mailbox where the error occurred is given. Table names, file names, and (host) system return codes are other examples of information supplied in an MPU processing error message. In most cases, it will be necessary to call the NTM system programmer to investigate the cause of the problem.

The MPU processing error codes are as follows:

31001 MAILBOX WRITE ERROR
31002 NO READ ON MAILBOX
31003 MAILBOX DISCONNECT ERROR
31004 CALL WAIT ERROR
31005 SET TIME ERROR
31006 PROCESS START ERROR
31007 PROCESS ABORT ERROR
31008 TIMEOUT ERROR
31009 TABLE ENTRY NOT FOUND
31010 STATE MESSAGE CONFLICT
31011 INVALID MSG STRUCTURE

4.2 INTERFACE ERROR CODES

AP interface errors are those errors occuring in the AP interface (to the NTM) and detected by the MPU during message processing. All errors of this type involve invalid message header field values. For example, upon the occurrence of an AP interface error where an invalid message category is given in the header, the following message will be displayed to the NTM Operator console:

```
Error in APNAME on APC xxx  Code: yyyyy  Severity: z
     Description of error
```

The "APNAME" indicates the name of the application process sending the message where the error has occurred. These errors are caused by the AP or the AP Interface providing invalid data in the message header. The application designer should check to insure that proper "Data Length", "Message Type", and "Destination AP Name" arguments are passed to the AP Interface. Otherwise, it will be necessary for the NTM system programmer to investigate the errant AP Interface.

The AP interface error codes are as follows:

32001	INVALID MESSAGE CATEGORY
32002	INSTANCE UNAVAILABLE
32003	NO AUTHORITY
32004	INVALID DESTINATION
32005	INVALID SOURCE
32006	RESOURCE UNAVAILABLE
32007	RESOURCE UNAVAILABLE MEMORY
32008	RESOURCE UNAVAILABLE APC
32009	RESOURCE UNAVAILABLE LINK
32010	RESOURCE UNAVAILABLE SYSTEM
32011	ILLEGAL MESSAGE TYPE

4.3 COMM Error Codes

COMM error codes are associated with errors detected by the COMM module. The following is a list of all currently defined COMM error codes:

20001	NETWORK LINK DISCONNECTED
20006	UNABLE TO WRITE TO NETWORK
20007	ILLEGAL NTM MESSAGE
20016	NETWORK CONNECT FAILURE
20017	ASYNCHRONOUS READ FAILED
20019	DECNET IO$DEACCESS FAILED
20020	LOAD ERROR
20021	VTAM CLOSE ERROR
20022	VTAM OPEN ERROR
20023	VTAM SETLOGON ERROR
20024	VTAM OPENDST ERROR
20025	INTERFACE NOT INITIALIZED
20030	NETWORK SEND ERROR
20040	NETWORK RECEIVE ERROR
20050	VTAM CANCEL ERROR
20060	VTAM SIGNAL ERROR
20061	VTAM TIMEOUT ERROR
20070	VTAM CLSDST ERROR
20080	VTAM TP END ERROR
20081	VTAM LOSTTERM ERROR
20082	VTAM NEGATIVE RESPONSE RECEIVED
20101	UNABLE TO PARSE COMM INFO FROM NTM
20102	MVS ASSIGN W/MBX FAILED
20103	DECNET DECLARE NETWORK OBJECT FAILED
20104	DECNET IO$ACCESS FAILED
20813	NOT YOUR TURN TO TRANSMIT
21111	LAN TRACE INFORMATION

SECTION 5

NTM TABLE MAINTENANCE

5.1 OVERVIEW

This section describes the procedures for maintaining the NTM tables. The NTM uses the tables described in this section to maintain system information and current status. Some of the NTM tables are global to all MPU components on a host while some are local to each MPU. When a change is made to the NTM which affects the system configuration (for example, the addition of a new AP), certain tables must be manually updated to reflect these changes.

The tables which are to be maintained by the NTM System Operator are:

NTMINIT	Provides system configuration information
NTMAPPS	Provides the processing characteristics of all application processes in the NTM environment.

Given a change to the NTM system configuration, one or both of the tables will need to be updated. The modification of either of these tables is a simple and straightforward procedure involving editing the file to make the necessary changes. These table files are maintained in the NTM system directory on each host in the NTM environment.

The specific table file names are as follows:

VAX	IBM (DDNAME)
NTMINIT.	NTMINIT
NTMAPPS.	NTMAPPS

The table files contain data which appears as a string of characters. Each record in the file represents one table entry. Therefore, to add a new entry to a table, one has only to add another entry to the table initialition file. Similarly, to delete or modify a table entry, the specific record in the initialization file should be deleted or modified. It is critical that the alignment of data in these records remain intact. Any errors introduced during the editing process will cause problems at system run time. For this reason, great care should be taken when modifying any table initialization file. When editing a file, check to make sure the new or modified entry is in line with all of the other file entries.

5.1.1 NTM INITIALIZATION TABLE (NTMINIT)

The NTM operator may edit the NTMINIT file to set runtime values of the following data items:

- NTMID
- HOSTNAME
- MPU Mailbox Size (sets the size of all mailboxes)
- MONITOR Mailbox Size

The NTMID may be modified in order to run multiple NTM images at one time. Any changes made become effective during the next execution of the start NTM command. No recompilation is necessary.

The NTMINIT file also defines additional MPU's and communication links for multi-host configurations of the NTM.

A sample NTMINIT file follows:

```
* Comment
*
NTMID=A
HOSTNAME=VAX
*
LINKNAME=VI,NOSTART
DESTHOST=IN2
COMMAP=NTCOMTOIN2
COMMINFO=CAE8:
*
LINKNAME=VQ,NOSTART
DESTHOST=IBM
COMMAP=NTCOMTOIBM
COMMINFO=SNAGTY:IISSNIV:7:
*
APC=QQQ,NOSTART
MPUMBXSIXE=4096
MBXQSIZE=2048
*
ALLCAPS
```

All lines beginning with "*" are comments.

The NTMID and HOSTNAME entries are required.

Additional MPU's may be defined with the APC entry. APC is a three character identifier for the MPU. This is also the apc value for the MPU's entry in the NTMAPPS file.

MPUMBXSIZE is the number of bytes in the MPU mailboxes.

MBXQSIZE is the number of bytes in the MONITOR mailbox. The default for both of these is 10000.

The ALLCAPS entry tells the monitor to display messages in all capital letters.

Each communication link is defined with the LINKNAME, DESTHOST, COMMAP and COMMINFO entries.

LINKNAME is a two character identifier for the link. The first letter of each host in the link may be used. NOSTART is optional and means that the link must be started with the "Start Link" operator command. If NOSTART is not specified, the link will attempt to be started automatically when the NTM is started.

DESTHOST is the HOSTNAME in the destination host's NTMINIT file.

COMMAP is the apname in the NTMAPPS table for the communication application.

COMMINFO is communication application specific information required for connecting to the destination host.

5.1.2 AP CHARACTERISTICS TABLE (NTMAPPS)

The NTMAPPS file contains AP processing charcteristic information. Each entry in the NTMAPPS file has the following format:

NAME	SIZE	TYPE
AP NAME	10	ALPHANUMERIC
MAX. INSTANCES	2	NUMERIC
NUMBER OF PARENTS PER INSTANCE	2	NUMERIC
INITIATION NEEDS	1	NUMERIC
ON ABORT	1	NUMERIC
NUMBER OF MAILBOXES	1	NUMERIC
ON SHUTDOWN	1	NUMERIC
ON CHILD NORMAL TERM.	1	NUMERIC
ON CHILD ABNORM TERM.	1	NUMERIC
ON CHILD SHUTDOWN	1	NUMERIC
TIMEOUT HANDLING	1	NUMERIC
AP PRIORITY	1	NUMERIC
ENABLE	1	ALPHANUMERIC
ACCESS FLAG	1	NUMERIC
APC	3	ALPHANUMERIC
PATH	9	ALPHANUMERIC

Number of Parents

01 except for queue servers

Enable Values

0 Application may not be accessed
1 Application available

Access Flag Possible Values

0 Don't do authorization checking
1 Do authorization checking
(currently not implemented, 0 should be used)

AP Priority Possible Values

0 Default AP Priority (at present all NTM AP's will be assigned the same priority)

Initiation Needs - Possible Values

0 No special needs
1 Needs specific init message
2 Must be started from terminal (never initiate)
3 Must be started by the monitor

Number of Mailboxes - Possible Values

0 AP Does Not Require Mailboxes
1 AP Supports a Cold and an ACK Mailbox only
2 AP Supports Cold, ACK, and Hot Mailboxes

On Abort - Possible Values

1 Run to Completion
2 Send Abort Message to AP
3 Abnormally Terminate AP

On Child Abnormal Termination - Possible Values

0 No Message to AP
1 Message to AP Required
2 Terminate Parent AP

On Child Normal Termination - Possible Values

0 No Message to AP
1 Message to AP Required
2 Terminate Parent AP

On Child Shutdown - Possible Values

0 No Message to AP
1 Message to AP Required
2 Terminate Parent AP

On Shutdown - Possible Values

0 AP Has No Shutdown Logic
1 AP Has Logic To Gracefully Shut Itself Down

Timeout Handling - Possible Values

0 Paired Messages Not Handled
1 Cancel Message Pair On Timeout
2 Abort AP On Timeout
3 Do Not Cancel Pair (Renew Timeout Period)

SECTION 6

MESSAGE INDEX

This section contains a list of all possible error messages in numeric order.

Message Code	NTM Component	Message Meaning
10001	IPC	EVENT BLOCK NOT INIT
10002	IPC	NO MESSAGE FOUND IN MAILBOX
10003	IPC	EVENT NUMBER ZERO
10004	IPC	INVALID DATA COUNT
10005	IPC	INPUT BUFF TOO SMALL
10006	IPC	MAILBOX NOT FOUND
10007	IPC	NUM OF BYTES EQUAL ZERO
10008	IPC	ELASPED TIME EQUAL ZERO
10009	IPC	NO RECEIVE MESSAGE OUTSTANDING
10010	IPC	EVENT-BLOCK IN USE
10011	IPC	MAILBOX FULL
10012	IPC	INVALID EVENT-BLOCK FOR MAILBOX
10013	IPC	NOT A RECEIVE EVENT-BLOCK
10014	IPC	EVENT NUMBER EXCEEDS MAX
10015	IPC	INPUT MAILBOX ALREADY EXISTS
10016	IPC	NUMBER OF BYTES EXCEDS MAX
10017	IPC	BUFFER SIZE ZERO
10018	IPC	BUFFER SIZE EXCEEDS MAX
10019	IPC	RECEIVE OUTSTANDING
10020	IPC	NO RECEIVE LAN OUTSTANDING
10021	IPC	EVENT (RCVMSG) NOT SATISFIED
10022	IPC	INVALID EVENT-BLOCK FOR TIMER
10023	IPC	INVALID EVENT-BLOCK FOR LAN
10024	IPC	RECEIVE LAN OUTSTANDING
10025	IPC	RECEIVE LAN NOT SATISFIED
10026	IPC	TIMER OUTSTANDING
10027	IPC	EVENT NUM NOT UNIQUE
10028	IPC	NO REQUESTS OUTSTANDING
10029	IPC	NUM OF EVENT-BLOCK EXCEEDS MAX
10030	IPC	NUM OF EVENT-BLOCK ZERO
10031	IPC	INVALID MAILBOX NAME
10032	IPC	MAILBOX SIZE ZERO
10033	IPC	MAILBOX SIZE EXCEEDS MAX
10034	IPC	TIME INTERVAL EXCEEDS MAX
10035	IPC	NOT A TIMER EVENT-BLOCK
10036	IPC	NOT A LAN EVENT-BLOCK
10037	IPC	NOT A CONSOLE EVENT-BLOCK
10038	IPC	INPUT MAILBOX NOT FOUND
10039	IPC	* KES OSIETXR ABEND MESSAGE
10040	IPC	TOO FEW EBS PASSED
10041	IPC	IPC SYSTEM ERROR
10042	IPC	RCV CONSOLE NOT SATISFIED
20001	COMM	NETWORK LINK DISCONNECTED

Message Code	NTM Component	Message Meaning
20006	COMM	UNABLE TO WRITE TO NETWORK
20007	COMM	ILLEGAL NTM MESSAGE
20016	COMM	NETWORK CONNECT FAILURE
20017	COMM	ASYNCHRONOUS READ FAILURE
20019	COMM	DECNET IO$DEACCESS FAILED
20020	COMM	LOAD ERROR
20021	COMM	VTAM CLOSE ERROR
20022	COMM	VTAM OPEN ERROR
20023	COMM	VTAM SETLOGON ERROR
20024	COMM	VTAM OPENDST ERROR
20025	COMM	INTERFACE NOT INITIALIZED
20030	COMM	NETWORK SEND ERROR
20040	COMM	NETWORK RECEIVE ERROR
20050	COMM	VTAM CANCEL ERROR
20060	COMM	VTAM SIGNAL ERROR
20061	COMM	VTAM TIMEOUT ERROR
20070	COMM	VTAM CLSDST ERROR
20080	COMM	VTAM END ERROR
20081	COMM	VTAM LOSTTERM ERROR
20082	COMM	VTAM NEGATIVE RESPONSE RECEIVED
20101	COMM	UNABLE TO PARSE COMM INFO FROM NTM
20102	COMM	VMS ASSIGN W/MBX FAILED
20103	COMM	DECNET DECLARE NETWORK OBJECT FAILED
20104	COMM	DECNET IO$ACCESS FAILED
20813	COMM	NOT YOUR TURN TO TRANSMIT
21111	COMM	LAN TRACE INFORMATION
31001	NTM	MAILBOX WRITE ERROR
31002	NTM	NO READ ON MAILBOX
31003	NTM	MAILBOX DISCONNECT ERROR
31004	NTM	CALL WAIT ERROR
31005	NTM	SET TIME ERROR
31006	NTM	PROCESS START ERROR
31007	NTM	PROCESS ABORT ERROR
31008	NTM	TIMEOUT ERROR
31009	NTM	TABLE ENTRY NOT FOUND
31010	NTM	STATE MESSAGE CONFLICT
31011	NTM	INVALID MESSAGE STRUCTURE
32001	NTM	INVALID MESSAGE CATEGORY
32002	NTM	INSTANCE UNAVAILABLE
32003	NTM	NO AUTHORITY
32004	NTM	INVALID DESTINATION
32005	NTM	INVALID SOURCE
32006	NTM	RESOURCE UNAVAILABLE
32007	NTM	RESOURCE UNAVAILABLE MEMORY
32008	NTM	RESOURCE UNAVAILABLE APC
32009	NTM	RESOURCE UNAVAILABLE LINK
32010	NTM	RESOURCE UNAVAILABLE SYSTEM
32011	NTM	ILLEGAL MESSAGE TYPE

SECTION 7

NTM LOG FILE

7.1 Message Log Format

Each message log entry conatins a time, date stamp, a message header and the message data. The following table shows the fields an NTM message log entry.

Field Name	Length
Time/Date Stamp	23
Header Format	01
Header Length	03
Data Length	04
Data Format	01
Message Priority	01
Message Type	02
Message Destination	15
Message Source	15
Mesage Serial No.	07
Header Status	01
Message Category	01
AP Priority	01
Integrity Check	01
Log Message Req	01
Statistics Collect	01
Test Mode Flag	01
Delayed Trigger	01
Trigger Time	15
Trigger Condition	01
Original Source	15
Channel	03
Continuation Ind.	01
User Data	1908

7.2 Message Types

The following table contains all message types that are used by the NTM for communication to and from the various components (Monitor, MPU, COMM). The NTM message log will contain messages with the message type field equal to one of these values when NTM internal messages are logged.

Type	Description
AB	ABORT-AP
AA	ACTIVE-LIST
AD	AP-DYING
SR	AP-STATUS-REQUEST
LV	APC-ALIVE
CS	CANCEL-SHUTDOWN
CL	CLEANUP
CA	CHILD-AP-STATUS
EX	EXTERNAL-CONNECTION
UA	APC-TABLE-UPDATE
UH	HOST-TABLE-UPDATE
HU	HOST-ACTIVE
HA	HOST-AVAILABLE
LA	LINK-ACTIVE
LF	LINK-FAIL
LR	LIST-REQUEST
OF	LOGOFF
LO	LOGON
HS	OFF-HOST-SHUTTING-DOWN
OA	OPERATOR-ABORT
PE	PROCESSING-ERROR
RE	RECOVERABLE-ERROR
DS	SHOW-SYSTEM-STATE
DA	SHUTDOWN-AP
DC	SHUTDOWN-APC
SH	SHUTDOWN-HOST
TR	SHUTDOWN-LINK
SP	SHUTDOWN-PENDING
SL	START-LINK
TE	TIMEOUT-EXPIRED
IA	UNSOL-INIT-ACK
NI	UNSUCC-INIT
HT	HOST-TERM
CR	CHANGE-ROLE
HN	HOST-NAME-REQ
CD	CONNECTION-DISCONNECT

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